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AUGUST 21, 1948

SCIENCE NEWS LETTER

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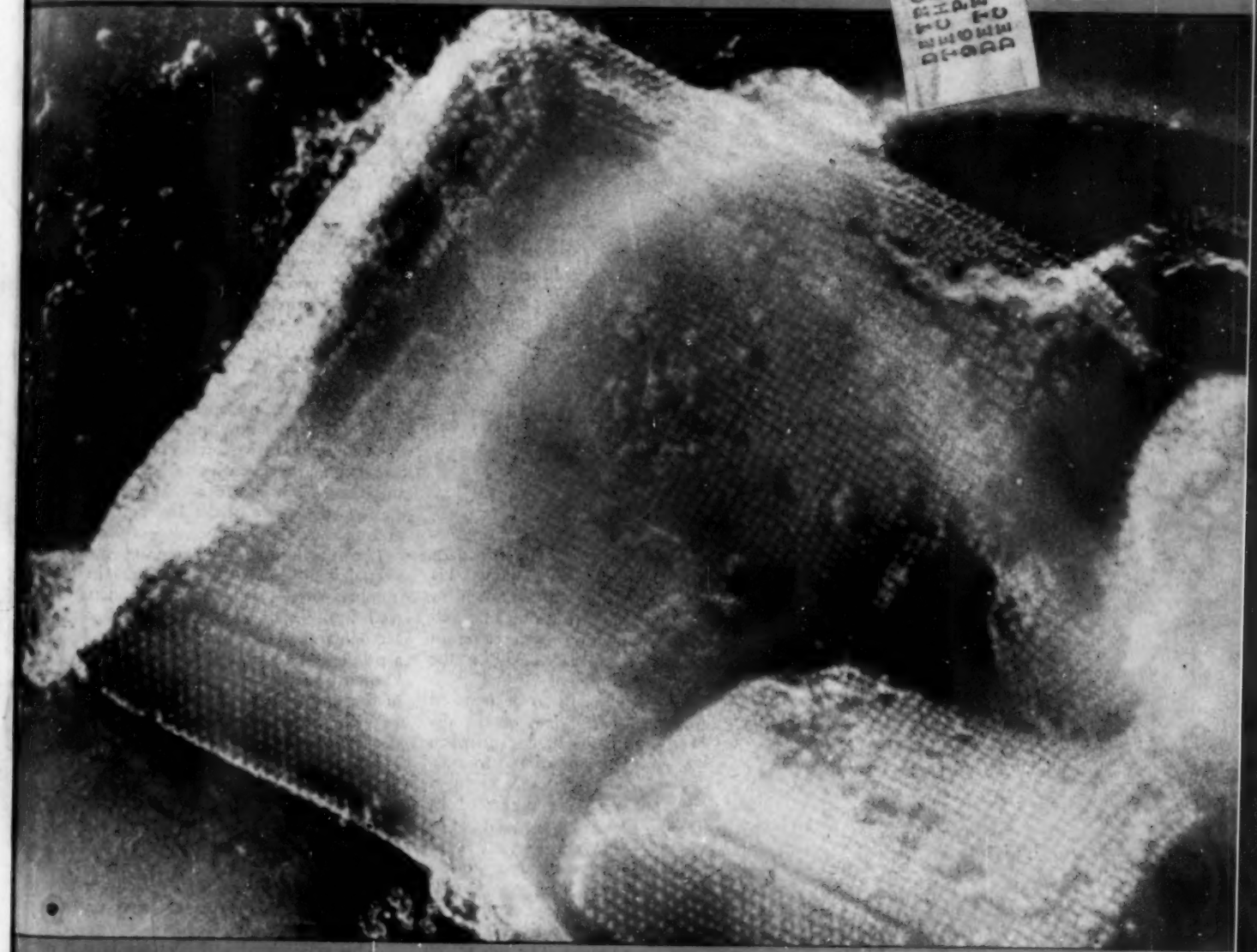
THE WEEKLY SUMMARY OF CURRENT SCIENCE



Molecules Of Virus

See Page 126

A SCIENCE SERVICE PUBLICATION

$5.50 A YEAR

VOL. 54 NO. 8.

EUROPEAN BISON—This animal is larger than his more famous American cousin, but his species is now reduced to a mere 93 pureblood head.

GENERAL SCIENCE

Foundation Bill Fails

Hope for enactment of a science foundation bill is again frustrated with the recent adjournment of Congress. This marks three straight years of failure.

➤ SPEEDY ADJOURNMENT of Congress has killed hopes that a national science foundation might be set up this year.

The foundation has been proposed as a civilian agency to direct government support of basic science in fields outside the realm of the Atomic Energy Commission. It has been termed a "must" for three years by leaders in science, education and the military.

But legislation for the foundation has failed to become law for three straight years. In 1946, the Senate passed a science foundation bill, but the House failed to act. Last year, President Truman vetoed a foundation bill at the end of a session.

Bills believed to meet the administrative objections raised in the President's veto statement were introduced in both the House and Senate early this year. The Senate passed it, for the third straight year, but the measure died in the House.

A move to get it enacted by the House with unanimous consent was blocked by an objection from Rep. Robert F. Rockwell, Rep., Colo. The bill, brought out of the Committee on Interstate and Foreign Commerce late in the session, did not come up for debate on the floor of the Lower Chamber.

When President Truman called Congress back into session July 26, he urged a national science foundation among his secondary requests. No action was taken on the bill during the short session. The yet-to-be-established foundation even came in for a recommended $15,000,000 in the budget submitted last January.

Meanwhile, no one seems to be opposed to the foundation itself. Some of the details have been controversial, but no open attack on the establishment of the foundation has been made.

The foundation was first suggested by the scientists who directed the mobilization of science in World War II. They envisioned it as a peacetime successor to the famed Office of Scientific Research and Development. It was originally proposed that it would take over from OSRD, which has long since closed shop. The job which the foundation was expected to do has fallen to other government agencies, particularly military organizations such as the Office of Naval Research.

Three years after the end of the war, the foundation which was to play a major role in government aid to postwar science has not been started.

WILDLIFE

European Bison May Have Chance of Survival

➤ EUROPEAN BISON, a species distinct from and larger than the more familiar American bison, have a bare chance for survival as a species. First general stock-taking since the war shows the existence of 93 animals, 50 of them cows. The first postwar pedigree book has recently been published by the International Society for the Protection of the European Bison, under the editorship of Dr. Jan Zabinski, director of the Warsaw Zoological Park.

Only animals known to be pure-bloods of the European species are listed in the book; the rather numerous hybrids with the American bison are excluded. Eleven specimens in Germany constitute a borderline case, since they might have an admixture of American bison blood.

Possible value of the European-American hybrids in restoring the European bison species is not excluded, though these animals will not be used for that purpose unless the need becomes evident. A prewar project, promoted mainly in Germany, called for breeding mixed-blood cows only to European bulls, thus gradually increasing the proportion of European blood in successive generations of offspring until practically no American bison strain was left in them. This procedure was known in German as "Verdraengungszucht," or suppression-breeding.

Places where European bison may be bred in Europe now number nine, with three in Poland, two each in Germany and Sweden, and one each in the Netherlands and the USSR. There are also a few animals on the estate of the Duke of Bedford, in England.

The European bison, or zubr, as the animal is also called, once ranged in great numbers over the entire continent and well into Asia, as its images on ancient Mesopotamian cylinder-seals testify. It was a prime game animal throughout antiquity, known until late Roman times in Gaul and in the forests of the Rhine and Danube.

With the advance of civilization during the Middle Ages, and the increase of population in Europe, its numbers dwindled, though at least two numerous herds survived into recent times, one in eastern Poland, at Bialowiez, the other in the wild lands of the Caucasus. During the time of anarchy and hunger after the first World War the latter herd was practically exterminated, but a few animals survived of the Polish group.

This small herd at Bialowiez is still one of the breeding nuclei. There they have been joined by the handful of animals representing the only survival of the Caucasian strain. Breeding is now carefully controlled, not only to insure if possible the survival of the European bison as a species but to preserve the different strains within the species.

INVENTION

Inventors' Ideas Needed

Armed Services are asking help in solving many technical problems which affect national defense. Their needs reach into many fields of science.

➤ HERE ARE SOME THINGS the Armed Services need:

Storage batteries for the Polar regions.

Smoke-producing mixture that will ignite and burn on wet ground.

Non-detectable ground mine.

New types of rocket propellants.

Improved metals.

Pneumatic tire substitute.

A bolt or cap screw that can be operated without the usual amount of turning.

New, non-magnetic compass.

Handwheels for vehicles that do not chill the operators' hands in cold weather.

These are only a few of several hundred technical problems affecting national defense which the Armed Services are asking help in solving. They are taken from an official list issued by the National Inventors Council, U. S. Department of Commerce. These lists are for circulation among inventors, in the hope that individuals will submit solutions or suggestions that may solve the problems.

All ideas and suggestions submitted to the Council are carefully screened by experts. When a proposal appears to be of constructive value, the Council refers it to the appropriate technical branch of the Armed Services for study. The judgment of the technical branch to which the matter was referred is communicated to the inventor as soon as possible.

Needs of the Armed Services reach into many fields, from those that might be solved by an ingenious mechanic to others that require the training and experience of high-grade research scientists. In the latter fields there are problems for chemists, metallurgists, physicists, engineers, mathematicians, aircraft experts and others.

In the fuel and lubricant field there is need for a diesel fuel oil which will not lose its physical and chemical characteristics at 65 degrees below zero Fahrenheit. There is need for lubricating oil which will maintain satisfactory viscosity and have a pour point of approximately minus 60 degrees Fahrenheit. Listed as an unsolved problem is the solidification of gasoline in order to improve packaging, transportation and storage under minimum temperatures of minus 65 degrees Fahrenheit.

A new type of electric storage battery, or improvements on present types, is essential to give efficient service under any climatic conditions within a temperature range of 130 degrees Fahrenheit above zero to 65 degrees below. It should not reflect any appreciable reduction in voltage and efficiency due to low temperatures. Applications range from locomotives to highway vehicles and stationary engines.

For chemists to solve is the problem of a red tracer composition for artillery shells which will stand high velocities, function uniformly for any number of seconds, and is not affected by heat or moisture. Then there is the problem of an igniting composition which is not affected by heat or moisture with uniform action under all conditions of ammunition use. In addition, plastic materials for many uses under various climatic and other conditions are required.

For metal experts many problems remain to be solved. There is need for an easily worked alloy which will withstand temperatures above 5,000 degrees Fahrenheit; a satisfactory ceramic liner for rocket motors; non-corrosive metals; anti-friction bushings; a non-corroding, penetrating, alloying treatment for magnesium; and light alloy materials which will retain strength at temperatures up to 1,000 degrees Fahrenheit.

Unsolved problems in the Council list reach into nearly all branches of science. Electronic equipment of various types might be mentioned. For mechanics there is the job of inventing a hydraulic jack that will not leak off under load or bind when operated to lower the load. Also wanted is a telescoping screw for elevating mechanisms, a substitute for the present wheel-brake system, and an air-brake system requiring only one hose.

The National Inventors Council has nothing to do with placing development contracts with private firms and laboratories for the solution of technical problems. It advises those interested in development contracts to discuss the matter directly with the Armed Services. The Council seeks only to bring the problems to the attention of individual inventors whose constructive thinking on them might not otherwise come to light.

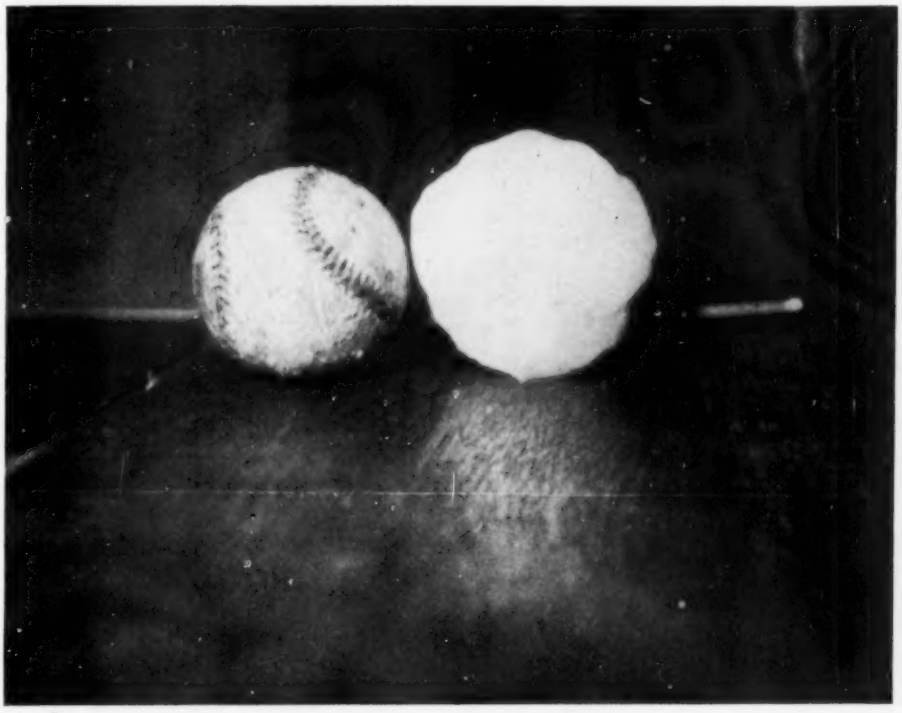
For the convenience of inventors, the Council publishes from time to time lists of needs of the Army, Navy and Air Force. However, some of the problems confronting the Armed Services are so highly specialized that it would serve little purpose to give them general publicity. Inventors may obtain lists from the Council.

Science News Letter, August 21, 1948

METEOROLOGY

Texas Hailstone Found Larger than Baseball

➤A HAILSTONE larger than a regulation baseball has been added to the U. S. Weather Bureau's list of giant natural missiles from the sky.



GIANT HAILSTONE—The big chunk of ice shown here was compared for size with a baseball. It fell in connection with a tornado which cost three lives and injured 43 people last May in Texas.

The big chunk of ice was found in Texas last May by a Pittsburgh, Pa., scientist. Dr. R. A. Glenn of the Coal Research Laboratory of the Carnegie Institute of Technology, Pittsburgh, was visiting his parents at a farm outside McKinney, Texas, May 3. The hail fell in connection with a tornado which cost three lives and injured 43 people. But Weather Bureau records of the storm indicate no damage from the hail.

The biggest hailstone he found was photographed beside a baseball. The stone was bigger. Dr. Glenn also reported that the hail had dented a corrugated sheet iron roof.

The picture is being added to the Weather Bureau's "rogues' gallery" of hailstones. But it is not the biggest one. The Texas stone was 11 inches in circumference, compared with one 17 inches around, which fell at Potter, Nebr., July 6, 1928. That one still rates as the largest ever recorded in the world.

Science News Letter, August 21, 1948

Letters To The Editor

200-Inch Poem

On the completion of the 100-inch telescope on Mt. Wilson several years ago, Dr. Alfred Noyes was invited to be one of the first to inspect the new instrument. He wrote a wonderful poem on the occasion which is the introductory portion of his extensive poetic work on astronomy, Watchers of the Sky. I think it would be a splendid idea for the California Institute of Technology to interest Dr. Noyes at this time when the new 200-incher is getting itself ready for service.—Dr. Harold T. Mead, Head of Science Department, Rider College, Trenton 9, New Jersey. *Pasadena, please take notice.*

Hillside Farming

There are a few points I would like to raise with regards to your comments on farming on hillsides (SNL, July 10).

First of all, I agree with you that it would be more rational to try to find some high yielding food plants that could be grown on hillsides. But this is only part of the story. There is a lot hidden behind the innocent sounding words "clean cultivation." William Faulkner in his PLOWMAN'S FOLLY (University of Oklahoma Press) showed that clean cultivation was the culprit behind erosion, decreased farm productivity, and floods. The simple fact is that plants and decaying plant materials act as a sponge to absorb water, and also act as a binding agent to hold soil particles together. In fact the very concept of soil becomes meaningless as such without the presence of decaying organic materials. Plants will not grow in crushed stone or sand alone. It is important to note at this point that soilless farming (hydroponics) is a basically different method of farming and data applicable to one method is definitely not applicable to the other.

Returning to our original line of thought, clean cultivation is the real "force of habit" culprit and a little investigation discloses that it originated at a time when the soil was so rich in organic material of all sizes that the farmer had to drag tree branches and other large materials out of the way of his plow. The result of clean cultivation is that the materials necessary for plant growth are not replaced in the soil. This leads to a gradual decrease in farm productivity as the materials in the soil are used up. As the United States was being settled and the West was being opened up, a man was not a real farmer unless he had "used up" two or three farms in his lifetime. There was plenty of rich virgin soil to the west, so why should he conserve the farm he had? Our country is settled and the total acreage is relatively fixed, yet "force of habit" farm methods are unchanged. . . ."—Fred J. Mocking, Chicago, Ill.

Story of Grass

"The Blessed Meek" (SNL, Aug. 14) is an inspired piece of writing; its point is the very point of grass, which I am afraid many persons miss, and it pays honor to Mrs. Chase in a most heart-warming way. —Alfred Stefferud, Editor of the Yearbook, U. S. Department of Agriculture. *Thanks.*

Science News Letter, August 21, 1948

Cashew trees are important economically in the tropics where they grow; their decomposed leaves make good fertilizer, the wood is suitable for many uses, the sap yields a resinous gum and the bark contains a high percent of tannin.

The red color of *strawberries* is due to the presence of an anthocyanin pigment.

Question Box

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Photographs: Cover, Dr. R. W. G. Wyckoff, National Institute of Health; p. 115, Dr. R. A. Glenn, Carnegie Institute of Technology; p. 117, Massachusetts Institute of Technology; p. 119, Humble Oil and Refining Co.

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GENERAL SCIENCE

Medical Books in Spanish

Basic texts for students and doctors in Latin America made possible by cooperation of Department of State with publishers in other American republics.

► MANKIND'S FIGHT for health is being advanced in the Western hemisphere by a program of book translation. It has resulted in the publication in Spanish and Portuguese of basic medical text and reference books by U. S. A. authorities, as well as books in other fields.

As part of this book translation project of the U. S. Department of State conducted by Science Service, nearly a score of major medical books have been translated and published in Latin America. Distributed by bookstores and publishers in the various countries, many of the medical books are now in use by physicians, public health workers, and medical students. Medical schools in the United States and physicians interested in Latin America are expected to add these books to their libraries.

Spread of Health Facts

The importance to health, industry, agriculture and national economy of a widespread distribution of medical and public health information is obvious. The great and continuing battle against disease in the Americas can be waged effectively only on a hemispheric scale. Illness and infection in any part of the western world is of concern to every other part. It is for these reasons that texts for medical schools have received major attention in the program. Very few medical books have been used in the medical schools of our neighbor countries. The good U. S. medical books that have been available in translation have in most instances been high priced, often double and triple the original-edition price. Students cannot or do not buy them. Most of the teaching has been by lectures only, supplemented by mimeographed lecture notes in some cases, and frequently by the use of out-of-date books of European origin that are not translated into Spanish or Portuguese.

In order to provide adequate texts for medical students there were carefully selected from an original list of 117 books a dozen or so of the most necessary texts, one book in each subject. Experts with experience in the medical schools and health programs of the other American republics, as well as officers of the leading medical, health and hospital organizations in the United States participated in this selection.

Through the cooperation of our government agencies and other interested organizations arrangements are made for a distribution which will introduce these basic medical texts in all areas as quickly as possible.

The spirit and purpose of these medical translations is given in the foreword of the Spanish translation, MANUAL DE MEDICINA TROPICAL:

"Mankind's continuing battle against disease is a concern of all the peoples of the world, no matter where they live, what language they speak or what flags earn their allegiance. . . .

"Fortunately for the peoples of the world, scientific knowledge, particularly medical and health information, traditionally is the rightful possession of all who need it. There is no more important freedom for a united world than the freedom of scientific research and information.

"This book brings into useful form the accumulated knowledge of an important field of medicine. As a part of their firm belief in the importance of international cooperation and interchange, the people of the United States through their government have participated in the mechanics of publishing in the Spanish language this important medical text and clinical volume."

Covers Many Fields

A wide field of information and subject matter is covered by the broad book translation project. Literature, political economy, history, sociology, psychology, education, mathematics, chemistry, physics, biology, agriculture, poetry, music, medicine, public health and fiction are some of the classifications in which the book translations can be catalogued. Because of the demand that exists in the other American republics for scientific, technical and medical information, major emphasis has been placed on books in these fields.

The following medical texts in Spanish are now available or in press:

Allergy

ELEMENTOS DE ALERGIA—Leo H. Criep—*Editorial P.R.O.C.M.O. Buenos Aires,* approx. 400 p., illus., $5.00. Spanish translation of 1st edition of ESSENTIALS OF ALLERGY—*Lippincott.*

Biochemistry

TRATADO Y PRACTICAS DE BIOQUIMICA—Benjamin Harrow—*Editorial Atlante, Mexico,* 640 p., illus., $6.20. Spanish translation of the 3d edition of TEXTBOOK OF BIOCHEMISTRY and 2d edition of LABORATORY MANUAL OF BIOCHEMISTRY—*Saunders.*

Child Psychology

LOS NINOS SON SERES HUMANOS—C. Anderson Aldrich and Mary M. Aldrich—*Libreria Medica Escalante, Mexico,* 192 p., illus., $2.50. Spanish translation of the 1st edition of BABIES ARE HUMAN BEINGS—*Macmillan.*

Diagnosis

MANUAL DE PROPEDEUTICA Y DIAGNOSTICO MEDICO—F. Dennete Adams—*Editorial Jus, Mexico,* 880 p., illus., $6.00. Spanish translation of the 13th edition of CABOT AND ADAMS PHYSICAL DIAGNOSIS—*Williams and Wilkins.*

Ear, Nose and Throat

BRONCOSCOPIA, ESOFAGOSCOPIA, GASTROSCOPIA—Chevalier Jackson and Chevalier L. Jackson—*Libreria de Porrua Hnos y Cia, Mexico,* 581 p., illus., $11.50. Spanish translation of 3d edition of BRONCHOSCOPY, ESOPHAGOSCOPY AND GASTROSCOPY—*Saunders.*

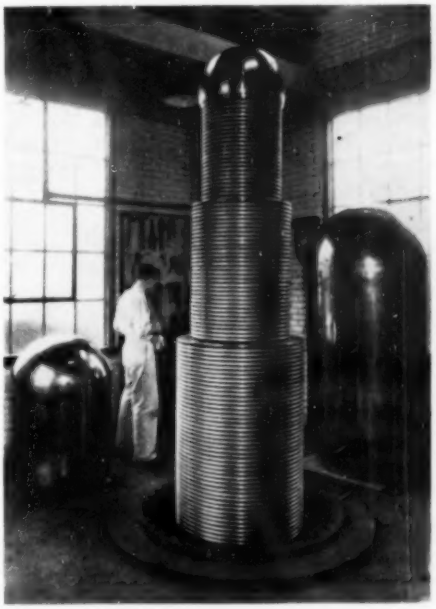
TRATADO DE OTORRINOLARINGOLOGIA—Chevalier Jackson and Chevalier L. Jackson—*U.T.E.A. Mexico,* approx. 840 p., illus., approx. $11.00. Spanish translation of DISEASES OF THE NOSE, THROAT AND EAR—*Saunders.*

Endocrinology

TRATADO DE ENDOCRINOLOGIA—Robert B. Greenblatt—*Editorial P.R.O.C.M.O. Buenos Aires,* 340 p., illus., $4.00. Spanish translation of 3d edition of OFFICE ENDOCRINOLOGY—*Thomas.*

Histology

BAILEY HISTOLOGIA—P. E. Smith and W. M. Copenhaver—*Lopez & Etchegoyen, Buenos*



ELECTROSTATIC GENERATOR ***—This 3,000,000 electron-volt machine is used by Massachusetts Institute of Technology scientists to produce cathode rays and X-rays for studies on biological reactions to radiation. For production of X-rays a gold disk is inserted in the stream of electrons coming from the machine. If cathode rays are desired, the gold disk is removed and the stream of electrons is permitted to hit the substance being tested directly.***

Aires, 908 p., illus., $7.50. Spanish translation of the 11th edition of BAILEY'S HISTOLOGY—*Williams and Wilkins.*

Hygiene

MANUAL DE HIGIENE INDUSTRIAL—Division of Industrial Hygiene, National Institute of Health, U. S. Public Health Service—*Pan-American Sanitary Bureau, Washington*, 476 p., $6.00. Spanish translation of 1st edition of MANUAL OF INDUSTRIAL HYGIENE—*Saunders.*

HIGIENE DEL INDIVIDUO Y DE LA COMUNIDAD—Clair E. Turner—*La Prensa Medica Mexicana, Mexico*, approx. 600 p., illus., $4.50. Spanish translation of 7th edition of PERSONAL AND COMMUNITY HEALTH—*Mosby.*

Nursing

APRENDA A CUIDAR SU ENFERMO—Mary M. Peabody—*La Prensa Medica Mexicana, Mexico*, 64 p., paper, illus., 25 cents. Spanish translation of HOME CARE OF THE SICK—*New York State College of Home Economics, Cornell University.*

EJERCICIOS DE MATERIA MEDICA—M. Domitilla—*Editorial P.R.O.C.M.O., Buenos Aires*, approx. 160 p., approx. $2.00. Spanish translation of 3d revised edition of OUTLINE OF MATERIA MEDICA AND SPECIAL THERAPEUTICS—*Saunders.*

TECHNICA DE ENFERMERIA—Minnie Goodnow—*Editorial P.R.O.C.M.O. Buenos Aires*, approx. 450 p., illus., approx. $4.00. Spanish translation of 4th edition of TECHNIC OF NURSING—*Saunders.*

Obstetrics

PRACTICA OBSTETRICA — Alfred C. Beck — *La Prensa Medica Mexicana, Mexico*, 864 p., illus., $7.00. Spanish translation of 4th edition of OBSTETRICAL PRACTICE—*Williams and Wilkins.*

Pathology

MANUAL DE ANATOMIA PATOLOGICA—Robert Allan Moore—*La Prensa Medica Mexicana, Mexico*, 1339 p., illus., $12.00. Spanish translation of the 1st edition of TEXTBOOK OF PATHOLOGY—*Saunders.*

Pharmacy

FARMACOPEA DE LOS ESTADOS UNIDOS DE AMERICA XIII—*U.S. Pharmacopoeial Convention, Philadelphia*, approx. 950 p., $11.00. Spanish translation of 13th revision of the U.S. PHARMACOPOEIA—*U.S. Pharmacopoeial Convention.*

Psychiatry and Neurology

LAS BASES LA CLINICA NEUROLOGICA—Samuel Brock—*Editorial Rosario, Argentina*, 433 p., illus., $8.75. Spanish translation of the 2d edition of THE BASIS OF CLINICAL NEUROLOGY—*Williams and Wilkins.*

NEUROANATOMIA HUMANA—Oliver S. Strong and Adolph Elwyn—*Editorial Rosario, Argentina*, 542 p., illus., $10.00. Spanish translation of the 1st edition of HUMAN NEUROANATOMY—*Williams and Wilkins.*

PSICOCIRUGIA—Walter Freeman and James W. Watts—*Editorial Medico-Quirurgica, Buenos Aires.* 393 p., illus., $7.50. Spanish translation of 1st edition of PSYCHOSURGERY—*Thomas.*

PSICOTERAPIA INFANTIL—Frederick H. Allen—*Editorial Rosario, Argentina*, 263 p., illus., $2.00. Spanish translation of the first edition of PSYCHOTHERAPY WITH CHILDREN—*Norton.*

Surgery

PATOLOGIA QUIRURGICA—John Homans—*La Prensa Medica Mexicana, Mexico*, 1278 p., illus., $10.00. Spanish translation of the 6th edition of A TEXTBOOK OF SURGERY—*Thomas.*

Tropical Medicine

MANUAL DE MEDICINA TROPICAL—Thomas T. Mackie, George W. Hunter and C. Brooke Worth—*La Prensa Medica Mexicana, Mexico*, 752 p., illus., $6.00. Spanish translation of first edition of MANUAL OF TROPICAL MEDICINE—*Saunders.*

The books listed are on sale at leading bookstores in Latin America or may be ordered from the publishers. Science Service through its retail book department will supply any of these books at the prices stated, postpaid to any address in the Western hemisphere.

Science News Letter, August 21, 1948

MEDICINE

Fever From Food Allergy

➤ BAFFLING FEVERS which sometimes are thought to be caused by serious infections and at other times lead to operations on tonsils, sinuses and other organs, are in some instances nothing more than food allergy.

This is asserted by Dr. Albert H. Rowe, University of California Medical School allergist, in the ANNALS OF ALLERGY. Dr. Rowe published the first fever chart of a food allergy fever victim, a girl of 18 who was referred to him after four-and-a-half months hospitalization.

The physician, stating that the condition is only beginning to be understood well, said that long continuing fevers from food allergy have caused the unnecessary removal of appendices, gall bladders and pelvic organs. Such fevers have been diagnosed as brucellosis, psychogenic fever, and other conditions. They have often been the chief reason for prolonged unnecessary inactivity, vacations and bed rest.

The young lady treated by Dr. Rowe had been terribly weak all her life and was bothered by bowel symptoms. Her fever caused her to be hospitalized for four-and-a-half months, during which time exhaustive laboratory and clinical investigations were carried out. The diagnosis at one time was for psychogenic fever.

An elimination diet excluding the common allergy-causing foods brought her fever, sometimes as high as 103, down to normal in 24 hours. She walked out of the hospital a week later, stronger than at any time in her life. In three weeks she had gained from 108 to 119 pounds. Her weight went up eventually to 132 pounds. Five years later she was well and free of fatigue.

Dr. Rowe determined, by adding one food at a time to her strict diet, that the girl was suffering from allergy to milk, a common cause of gastro-intestinal allergy. In her weakened condition the girl had been fed large quantities of milk all her life in order to "build up her strength."

The physician said there is no definite explanation of the cause of allergic fever, but that it is possible a disturbance in temperature-regulating centers of the brain causes a localized or generalized allergic reaction. Food allergy should be considered, Dr. Rowe said, when physical examination and laboratory studies give no explanatory clues and no relief is given by treatment based on positive findings.

Science News Letter, August 21, 1948

AGRICULTURE-BIOLOGY

Program of Birth Control And Conservation Needed

➤ MAN AS A HUMANITARIAN does all he can to relieve the suffering of his fellow-man, raise his standard of living and prolong his life. Man as a natural being responds impulsively to powerful drives that result in ever-increasing numbers of the race, with resulting frantic endeavors to find subsistence and a need-driven destructive exploitation of the land.

The dilemma in which man the life-saver has placed man the breeder is powerfully set forth in "ROAD TO SURVIVAL," by William Vogt, chief of the conservation section of the Pan-American Union, published by William Sloan Associates.

The oft-portrayed tragedy that is overtaking the soil of this country is being repeated in intensified form in the less-favored lands of the world, where the density of the populations is matched only by the depth of their ignorance of even the slightest elements of conservation. Mr. Vogt points in particular to Middle and South America, where he is especially at home. The apparently easy way out, industrialization, he terms an *ignis fatuus*. The less favored lands not only lack technical knowledge to impart to the surplus populations which they are supposed to support through industrialization; they do not have the basic resources such as iron ore and coal, and they are busily ruining their hydroelectric installations even before they build them, by denuding their sloping lands of forest protection and farming them by primitive methods.

Mr. Vogt sees salvation for mankind in a dual program of restoring the productivity of the soil and diminishing the productivity of the population. In other words, he would team up conservation with birth control. If we do not do this, and do it soon, he declares, "like Gadarene swine, we shall rush down a war torn slope to a barbarian existence in the blackened rubble."

Science News Letter, August 21, 1948

MEDICINE

Aids to Cancer Detection

Two techniques which may simplify and make possible more accurate diagnosis of this disease while still in the early curable stage, have been reported.

➤ TRANSPLANTING human tissue to the eye of a guinea pig and extracting bone-marrow from human hip bones may help detect cancer while it can still be cured.

"Precancerous" growths, such as malignant warts or moles, are easily distinguished from those in the later spreading stage, the condition known as metastasis, by the guinea pig test, Dr. Harry S. N. Greene, of the Yale University School of Medicine, explained in the AMERICAN MEDICAL ASSOCIATION JOURNAL (Aug. 14).

He terms the procedure "simple" because cancer tissue survives transfer from one species to another. Non-cancerous tissue will not grow after it is transplanted.

If the cancer is far removed from the parent growth, as in metastasis, the way the transplanted tissue grows in the guinea pig's eye gives a clue to where it started in the body, Dr. Greene said.

"Hidden" cancer may be discovered by the new procedure of extracting bone marrow from the hip, Dr. Michael A. Rubinstein, of the Montefiore Hospital, New York, reported in the A. M. A. JOURNAL (Aug. 7).

The new procedure is easier, safer, and better suited for repeated use than the standard method of drawing marrow from the breast bone, a study of 216 patients indicated.

Cancerous cells were discovered that failed to show up when the standard procedure was used, Dr. Rubinstein said. He pointed out that it also was helpful in determining the spread of cancer to the bone.

Another advantage is that the bone marrow may give the first positive indication of cancer in a hidden location when X-ray films fail to do so.

Dr. Rubinstein said that this new technique can be used to diagnose leukemia, multiple myeloma, anemia, Hodgkins disease, cirrhosis of the liver, sprue and kidney diseases.

Science News Letter, August 21, 1948

ENGINEERING

Oil Drilling Easier

➤ DRILLING CREWS, boring more than 10,000 feet deep in oil fields, will have lighter work in the future. Automatic equipment, developed by the Humble Oil and Refining Company of Houston, Texas, is responsible. It makes the drilling job easier.

A derrickman, seated with only a control handle to operate, directs remote control power tongs to make up and break out drill pipe and bits. This is an important feature in Humble's Rig No. 30, a newcomer to the oil fields. Also it provides greater safety as well as reducing fatigue of the drilling crews.

The need for powered machinery to do work formerly done largely by human power became necessary with the deeper wells now being drilled which extend from 10,000 to 18,000 feet into the earth. More power is required for hoisting long strings of pipe and the weight of the drilling equipment.

Deep-hole experience taught oil operators that heavy powerful rigs were not the only requirement for deeper drilling. The higher costs involved demanded equipment vastly more efficient. Other devices have been developed to give this greater efficiency.

The bits used in drilling require more or less frequent replacement with resharpened tools. Pulling a bit and its stem, particularly when they extend nearly two miles below the surface, requires much time and labor. Harder formations found at depths reduce bit life rapidly. More frequent round trips to the surface must usually be made as the bit goes below 10,000 feet. The Humble rig lessens the time required for bit changing as well as easing the work of the drilling crew.

Most of the physical effort of making round trips for the bit and stem and drill pipe connections has been eliminated by the remote-control power tongs and what is called a pipe-racker. The derrickman and tong operator control this equipment from comfortable seats. Although the speed of pulling one stand with the new equipment is only a little greater than is possible with conventional hand operation, the speed can be carried on indefinitely without the slow-down that accompanies other methods due to workman fatigue.

Science News Letter, August 21, 1948

ASTRONOMY

Russian Document Gives Positions of Asteroids

➤ COPIES of a document, written wholly in Russian, giving the expected locations of over 1,500 objects whirling through space, have arrived in America from Leningrad.

Far from being a military timetable, this is the latest astronomical publication of the U. S. S. R. Laborious computations by perhaps 40 Russian experts, from Kiev to Kasan, give the time and orbits when the known asteroids (little "earths" from 400 to 10 miles or less in diameter) will arrive opposite the sun and thus have a chance to be observed through telescopes.

Leningrad's Institute of Theoretical Astronomy, directed by Dr. M. T. Subbotin, took over from the Germans the international task of issuing this information to the world's observatories. The present tables, known to have been received at Harvard Observatory and the U. S. Naval Observatory, among American institutions, are written in Russian except figures and the names of the asteroids.

Soviet astronomers in issuing the new tables have immortalized Tito by giving his name to a hitherto unassigned asteroid, number 1550. And number 1554 has been christened Jugoslavia, both presumably before the recent political differences between Tito and the Kremlin. Almost every country has an asteroid named for it: 232 Russia, 916 America, etc. Famous men have their names attached to asteroids, as in the cases of 742 Edisona, 904 Rockefellia, 932 Hooveria. And there is 993 for Dr. F. G. Moulton of the American Association for the Advancement of Science, and 1123 for Dr. Harlow Shapley of Harvard Observatory.

Science News Letter, August 21, 1948

POWER TONGS — Rotary helper watches with hands on hips as the remote-control power tongs, controlled by the operator, "hand" a stand of five-inch drill pipe to lower pipe-racking arm. The pipe weighs nearly a ton.

GENERAL SCIENCE

Europeans Adopt U. S. Tastes in Cigarettes

➤ THE AMERICAN SOLDIER who smoked his own favorite brand of cigarettes in Europe is responsible for a major change in European smoking tastes.

European smokers are shifting away from Oriental types of cigarette that they used to smoke and adopting American blends. This is reported by J. Bernard Gibbs of the U. S. Department of Agriculture's Office of Foreign Agricultural Relations who has recently returned from a study of tobacco marketing in Europe.

Since 1938 the amount of straight Oriental cigarettes consumed by Europeans has shrunk from 24% to 8% of the total. In the same time the consumption of cigarettes containing United States grown leaf has almost doubled, jumping from 29% to 52% of all those smoked, European manufacturers' reports reveal. In the Netherlands, Belgium, Denmark, Norway, Portugal, Sweden and Austria cigarettes blended in the American way make up 70% to 90% of total cigarettes smoked.

Science News Letter, August 21, 1948

GENERAL SCIENCE

Commodity Specifications Directory Has Supplement

➤ SOME 44,000 specifications of commodities produced or that can be bought in America are summarized either in a 1945 directory or its 1948 supplement just published by the National Bureau of Standards. The complete publication is for manufacturers, and particularly for purchasing agents who want to know just what they are getting.

A specification is a concise, definite, and complete statement of what the buyer requires from the seller. It includes limiting values for the properties necessary to meet the required service, with proper tolerances or variation from the exact standard. It serves as the common meeting ground for manufacturer, distributor, and user. It eliminates the haphazard method of wasteful searching and chance buying with incomplete information.

The federal government is the largest single purchaser of consumer goods in this country. Prior to 1921 each agency of the government had its own specifications for all materials it purchased. Then the Federal Specifications Board was established and given the duty of compiling and adopting standard specifications. The board is made up of representatives from the various branches of the government, with the director of the National Bureau of Standards ex officio chairman.

In compiling the National Directory of Commodity Specifications and its new supplement a strenuous effort was made to obtain current information concerning useful standards and specifications from all national organizations that represent industry, and those interested in the formulation of commodity specifications.

The 1945 Directory, a revision of earlier publications, contains 1,311 pages. Its new supplement is a 322-page publication. Both may be obtained from the Superintendent of Documents, Government Printing Office, the first for $4.00 and the supplement for $2.25. They include some items that are not strictly commodity specifications but closely related information essential to most users.

Science News Letter, August 21, 1948

GENERAL SCIENCE

Doctors May Be Drafted If too Few Volunteer

➤ DOCTORS may be drafted if too few of them volunteer under the new Selective Service Act, the American Medical Association warned.

The Armed Forces may need as many as 6,000 more doctors to meet the needs of the draft, an editorial in the Association's JOURNAL (Aug. 7) estimated. There is no provision for a draft of doctors in the new law, but President Truman "may again insist on such a draft," the Association predicted, if volunteers do not meet the needs of the services.

The editorial stressed the obligation of young doctors who received training at government expense during the war to volunteer for service now.

These young doctors who saw no active service but received their education "owe an obligation to the government and to the people of the United States," the editorial declared.

Plans for better use of physicians in the services were hailed by the Association. These include studies to avoid leaving some doctors with too little to do, and air evacuation of wounded personnel in place of hospital ships.

Science News Letter, August 21, 1948

GENERAL SCIENCE

Latin Scientists to Study On Guggenheim Fellowships

➤ STUDIES ranging from atomic forces to horseflies will be made in this country by scientists from Latin American countries. Grants were announced by the John Simon Guggenheim Memorial Foundation. Money awarded by the Foundation to further the work of these scholars totals $65,000.

Dr. Mauro Pereira Barretto of the University of Sao Paulo in Brazil will prepare a paper on the horseflies of tropical America. Dr. Jose Leite Lopes of the University of Brazil will work on the fundamental theory of nuclear forces. The other Latin American scientists include biologists, medical doctors, an electrical engineer, a mathematician and an astronomer.

Science News Letter, August 21, 1948

IN SCIEN

BIOCHEMISTRY

Microscopic Animals Are Used in Drug Testing

➤ LABORATORY MICE and guinea pigs have microscopic competitors in the business of testing drugs and poisons. These are rotifers, minute freshwater animals that rotate certain body appendages so rapidly as to create the illusion that they literally have wheels in their heads—whence the name.

Three workers at the Beecham Research Laboratories, R. H. Marriott, S. Morris and Y. Larthe, report in the British journal, NATURE (July 31) that they have been able to make effective and highly economical tests of a number of drugs, including aspirin, codeine, morphine and alcohol, using only a few drops of solution and 10 or 15 rotifers in a test-tube of water.

The tiny animals respond with four patterns of behavior: 1. dead from natural causes—which doesn't count; 2. killed by the drug; 3. narcotized; 4. alive and not narcotized.

Science News Letter, August 21, 1948

METALLURGY

Radioactive Atoms Aid in Metallurgical Problems

➤ RADIOACTIVE ATOMS, famed in the field of atomic energy, are expected to assist solve mineral engineering problems and lead to more efficient production of metals from ores, it is revealed by the Massachusetts Institute of Technology. An expanded research program is now starting.

Some work has already been done, but the application of radioactive tracer techniques to mineral problems is to be considerably expanded, Dr. Thomas K. Sherwood, the institute's dean of engineering, stated. Modern radioactive tracer techniques provide engineers with an analytical tool hundreds of times more sensitive than the older chemical methods, he said. The program is to determine the best methods of application.

Studies by this method are made by following the electron emissions from radioactive atoms which are introduced into any substance being studied. For example, it is possible to "tag" copper sulfate with radioactive copper with the copper sulfate added to the mineral, sphalerite, in water. By means of a Geiger counter, an instrument widely used to detect and measure radioactivity, it is a simple matter to determine the amount of copper extracted from the solution. Many metallurgical problems of a similar nature but less simple will be studied by this method.

Science News Letter, August 21, 1948

E FIELDS

PHARMACOLOGY

Identify Crude Drugs by Fluorescence Under Rays

➤ A SPEEDY and efficient method for identifying botanical drugs by their fluorescent glow under ultraviolet light has been developed by Charles R. Chase, Jr., of San Francisco while a student at the University of California College of Pharmacy.

This new system for identifying crude drugs won Mr. Chase the Kilmer Prize and a presentation of an inscribed gold key by the American Pharmaceutical Association.

Using the knowledge gained by earlier researchers who observed that some drugs give off a characteristic fluorescent glow when exposed to ultraviolet light, Mr. Chase tested 151 crude drugs but could get only about a third of them to fluoresce under the rays.

He next discovered that after treating a drug with one or more of three different solutions the drug would give off a characteristic glow of color that would easily identify it.

This may prove to be a very important advance, for traditional methods call for tedious studies of cell structure under the microscope or for time-consuming microchemical tests. Fast and reliable methods of detection are important to pharmaceutical firms, research workers and law enforcement officials, for such drugs reach the United States from all over the world.

Mr. Chase is continuing his experiments to perfect his system to include identification of drugs which show similar color changes or do not fluoresce at all after application of the three standard methods.

Science News Letter, August 21, 1948

GENERAL SCIENCE

Corner Druggist Seen Joining Ranks of D. P.'s

➤ YOUR neighborhood drugstore pharmacist may soon be a displaced person, predicts Dean J. Lester Hayman of the University of West Virginia College of Pharmacy, who spoke as president-elect before the American Association of Colleges of Pharmacy in San Francisco.

Dean Hayman pointed out that the independent drugstore pharmacist fills only a very limited number of prescriptions, while there is a growing demand for pharmaceutical service elsewhere.

He referred to the "increasing millions of our people under the coverage of prepayment or insurance plans for health coverage, many of which include or will include the providing of routine medication." In addition he listed the trend in labor organizations for the inclusion of health benefits in their labor contracts; health services established in industrial concerns for employees and their families, and the government's program of medical care for veterans.

Presumably, pharmaceutical service would still be provided by pharmacists, but these trends, Dean Hayman predicts, may mean that "in the not too distant future a greater portion of the medication will be obtained through hospitals, clinics, dispensaries, or Veterans' Administration facilities."

The outgrowth of this, he fears, would "lead to unemployment and excessive economic competition," unless professional schools of pharmacy limited their enrollments. His proposal is to increase the period of pre-pharmacy education, to require a national admission test similar to those now required by medicine and dentistry, and to award graduates a distinctive professional doctorate degree.

Science News Letter, August 21, 1948

PSYCHOLOGY

Children's Eating Habits Influence Handedness

➤ IF YOU ARE RIGHT-HANDED, it may be because you learned to be when you put the first spoonful of cereal in your mouth.

Parents and teachers often influence children to be right-handed when they hand the youngsters objects such as a spoon, Dr. Gertrude Hildreth discovered in a study of 44 children at the Manhattanville Day Nursery in New York.

Dr. Hildreth watched the children as they ate and played. She found that while a child may eat a cookie with either hand, he is more likely to hold a spoon in his dominant hand.

"Children who get an early start in right-handed eating tend to become right-handed," Dr. Hildreth concluded.

In activities such as eating, where parents or teachers direct the child, he learns to use his right hand more, Dr. Hildreth explained in her report to the JOURNAL OF GENETIC PSYCHOLOGY (March). Where adults do not direct the child, he may use either hand.

Even though teachers at the nursery school tried to let the child use either hand, they tended to place silverware where the child could reach it best with the right hand.

When eating appeared to be an important factor in handedness, Dr. Hildreth decided to find out how much the youngsters used their hands in the process. One of the poorer eaters was counted at one meal to make 49 moves with his hands. He used his fork 10 times; spoon, 7; cup, 8; and fingers, 24.

The psychologist urged that more studies be made of the effects of training on handedness.

Science News Letter, August 21, 1948

CHEMISTRY

New Sunburn Compounds Give Greater Protection

➤ GOOD NEWS for sunburn victims comes with the announcement of two compounds that give five to eight times more protection against sunburn than any now in use.

The compounds are ethyl-p-diethylaminobenzoate and methyl-p-dimethylaminobenzoate. Their protective action against sunburn was reported to the American Pharmaceutical Association in San Francisco by Drs. W. D. Kumler and T. C. Daniels of the University of California College of Pharmacy.

These chemicals have proved less likely to change or deteriorate in the presence of sunlight, air and moisture than many now used. They can be applied in lotions, ointments or solutions, the scientists said. The compounds are not harmful or irritating to the skin and permit good tanning.

Laboratory experiments and observations of persons who have used these chemicals show they give more protection than other compounds when the sunlight is in the "sunburn" region of the light spectrum. Good tanning is possible because they do not absorb sunlight beyond the wavelengths where rays don't burn.

Science News Letter, August 21, 1948

CHEMISTRY

New Poison Makes Insects "Burn Themselves Out"

➤ RYANODINE, one of the newer insecticides, apparently kills by forcing its six-legged victims' body fires to burn under forced draft while it holds them in motionless paralysis. This is the indication of experiments carried out by Dr. Charles C. Hassett at the Army Chemical Center in Maryland.

Dr. Hassett injected minute measured amounts of the poison into the bodies of large cockroaches, which he then connected up with exceedingly delicate apparatus that measured the amounts of oxygen each insect took in. Although the insects became paralyzed from the moment of the injection, their oxygen intake rose steeply, to nearly two and one-fourth times normal.

The oxygen consumption remained high for a considerable period. By the end of 24 hours it had dropped back to normal, and later, between 30 and 40 hours, it had fallen to less than one-half normal. Dr. Hassett is of the opinion that this second drop signals the coming of death.

Ryanodine, unlike DDT and many other recently developed insecticides, is not a synthetic compound. It is extracted from a tropical plant known as Ryania, found in Mexico and Central America.

Dr. Hassett's experiments are reported in SCIENCE (Aug. 6).

Science News Letter, August 21, 1948

ASTRONOMY

Jupiter Brightest Object

It is 5.75 times as bright as the brightest star now visible, Vega. This giant planet will shine in the southwest during September evenings.

By JAMES STOKLEY

➤ EXCEPT for the moon, the brightest object to be seen in the evening skies during September is the giant planet Jupiter. This great orb, with its diameter of nearly 89,000 miles, as compared with the earth's 7,918 miles, shines in the southwest, in the constellation of Ophiuchus, the serpent-bearer. This is shown on the accompanying maps, which give the aspect of the skies at 11 p. m. daylight saving time, at the beginning of September and an hour earlier on the 15th. On the astronomical scale of brightness, its magnitude is minus 1.8. This is 5.75 times the brilliance of the brightest star now visible—Vega, in Lyra, the lyre, a little west of the zenith. The magnitude of Vega is plus 0.1.

Second brightest star of the September evenings is Capella, in Auriga, the charioteer, which is appearing in the northeast, just above the horizon. Because it is so low it does not show its full brilliance. This is also true of the third brightest star, Arcturus, in Bootes, the bear driver, which is now descending behind the horizon in the northwest.

Altair High in South

In a much better position is the fourth brightest star, Altair, in Aquila, the eagle. This is high in the south. With Vega, and Deneb, in Cygnus, the swan, directly overhead at the time of the maps, it forms an easily located triangle which makes a good guide in studying the constellations.

A sixth first-magnitude star is visible, but like Capella and Arcturus, its brightness is dimmed by its lowness. It is Fomalhaut, in Piscis Austrinus, the southern fish, shown low in the south. This is a star which is now nearly as high as it ever gets for observers in the United States. For countries in the southern hemisphere, however, it rises high overhead.

Although Jupiter is the only planet shown in the maps, some more are visible at other times during the night. Mercury will be farthest east of the sun on Sept. 25. Only about six degrees above the western horizon at sunset, it will be very difficult to locate. Mars, far away and quite faint, is in the constellation of Libra, the scales, and sets about an hour after the sun.

Venus is now a brilliant morning star, of magnitude minus 3.8, which makes it nearly 16 times as bright as Jupiter. In the constellation of Cancer, the crab, it rises several hours before the sun, and is some 40 degrees high at sunrise. Saturn, in Leo, the lion, is close to the bright star Regulus, seen low in the east just before sunrise.

When the moon comes in front of the sun, we call it an eclipse, but it also may "eclipse" a star or planet. Then the phenomenon is termed an "occultation." While occultations of stars are common, it is much more rarely that a planet is occulted, but such an event happens in September. Unfortunately the planet Mars is not very bright, and is low in the sky at the time. However, with clear weather, and possibly with some optical aid such as binoculars, it should be possible to observe it, particularly for people in the eastern part of the country. Farther west the occultation occurs during the afternoon.

The moon at the time is about 3.5 days past new, so it will appear as a crescent. Moving through the sky from west to east, the dark edge will hide the planet. When the moon is thus nearly new, it shows the effect of "earth-shine," commonly called "the old moon in the new moon's arms." The whole moon can be seen faintly, its outline continuing the arc made by the crescent. The reason is that while the crescent consists of part of the lunar hemisphere on which the sun shines brightly, sunlight reflected from the earth shines on a section of the dark side, thus illuminating it for us. "Immersion" is the name given to the disappearance of the planet, while "emersion" is its reappearance, from the bright edge, the one toward the direction of the sun.

In the following table are given the times of immersion and emersion of Mars on Sept. 6, for Washington and four other locations in various parts of the United States, as computed at the U. S. Naval Observatory. These are: 1. western Massachusetts about 15 miles north northeast of Northampton; 2. western Illinois, about 25 miles east of Quincy; 3. Texas, about 25 miles southwest of Austin; 4. southern California, about 30 miles south of Fresno.

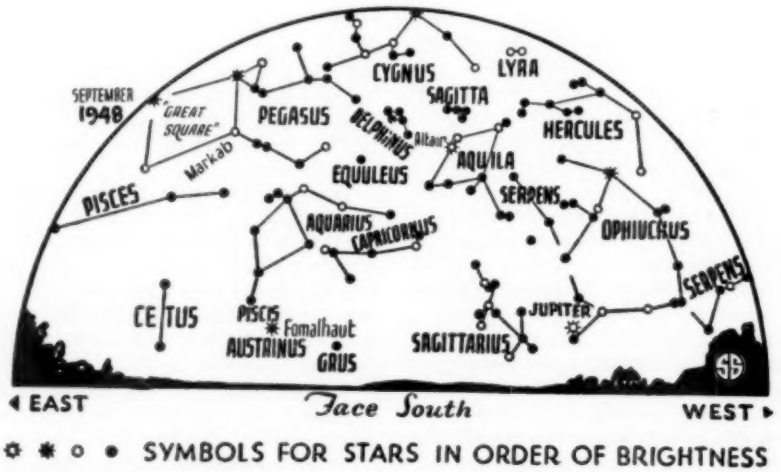
Location	Kind of time	Immersion	Emersion
Washington	EDST	6:07 p.m.	6:57 p.m.
1.	EDST	6:17 p.m.	6:49 p.m.
2.	CDST	4:31 p.m.	5:42 p.m.
3.	CDST	4:24 p.m.	5:51 p.m.
4.	PDST	1:52 p.m.	2:59 p.m.

Even if you cannot see the actual occultation in either of its phases, look for the moon on the evening of Sept. 6 as soon as it gets dark, and you should have little difficulty seeing the planet close to it.

"Harvest Moon"

The full moon which occurs on Sept. 18 at 5:43 p.m., EDST, is known as the "harvest moon." The peculiar thing about it is the slight difference between moonrise on successive nights. Thus, at 40 degrees north latitude and on the central meridian of the time belt (i. e. 75th meridian for Eastern time, 90th for Central, 105th for Mountain and 120th for Pacific), the moon rises on the 17th at 6:03, standard time; on the 18th at 6:24 and the 19th at 6:44, only about 20 minutes difference daily. In contrast, six months ago, for the same locations, the nightly delay at the time of full moon was an hour and a quarter. Since the September full moon comes up at nearly the same time for several nights in a row, it supposedly gives the farmers light to do their harvesting in the evening; hence the name.

Reason for the harvest moon is found in the angle made with the horizon by the ecliptic—the path along which the sun, moon and planets seem to move, which is really the projection in the sky of the plane of the orbit of the earth. Each day, at all times of year, the moon advances about the



same distance — about 12 degrees — along this line. In March it happens that when the full moon is rising the ecliptic makes a very steep angle. Thus, the moon's daily motion takes it well below the horizon from one day to the next and thus causes the maximum difference in moonrise.

In September, on the contrary, the ecliptic makes a low angle with the horizon, and the moon's daily motion does not take it much farther below. It does shift it toward the south, and causes a considerable difference in the point of the horizon where the moon rises, but there is a minimum delay in the time of rising. In October, conditions are nearly the same, and again there is little daily difference. This is called the hunter's moon.

Time Table for September

Sept.	EDST	
2	9:04 a. m.	Moon passes Saturn
	12:00 p. m.	Venus farthest west of sun
3	2:00 a. m.	Moon nearest, distance 222,000 miles
	7:21 a. m.	New moon
6	5:51 p. m.	Moon passes Mars and occults it
10	3:05 a. m.	Moon in first quarter
	8:34 a. m.	Moon passes Jupiter
16	7:00 a. m.	Moon farthest, distance 252,400 miles
18	5:53 a. m.	Full moon
22	11:22 p. m.	Sun crosses equator, autumn commences in northern hemisphere
25	6:00 a. m.	Mercury farthest east of sun
	EST	
26	12:07 a. m.	Moon in last quarter
29	8:04 a. m.	Moon passes Mercury
	11:35 p. m.	Moon passes Saturn

Subtract one hour for CT, two hours for MT, and three for PT.

Science News Letter, August 21, 1948

ELECTRONICS

Machine Plays Chess

➤ A MACHINE now can solve business problems, write your letters or play you—and beat you—in games of gin rummy or chess.

The "thinking machine" costs approximately $175,000, not counting what you will lose if you play gin rummy against it.

UNIVAC, the universal automatic computer, was described at a symposium on modern calculating machinery held at the University of California at Los Angeles by Dr. John W. Mauchly, who together with J. P. Eckert of the Eckert-Mauchly Computer Corporation, Philadelphia, designed the machine.

Feed the machine a form letter along with instructions on how to write it and personalized letters, no two alike, will roll out of UNIVAC in an endless paper parade.

It plays chess and gin rummy so perfectly that no human opponent has a chance against it.

In a more serious mood it can work on statistical analysis, business problems, classification of weather observations and complex aeronautical problems. It can solve tricky problems of traffic control over airports.

In speed, flexibility and versatility it surpasses earlier calculating machines, declared the scientists.

The earlier ENIAC was pretty smart but the UNIVAC is even smarter. The ENIAC, which was also designed by Dr. Mauchly and Mr. Eckert, could store in its internal memory 20 numbers of 10 digits each and could multiply these numbers 300 times a second. UNIVAC can store 1,000 numbers of 12 digits each in its vastly improved memory and can multiply them 500 times a second.

It is the first machine which can take instructions along with the numbers fed to it and can even change its own instructions. Coded instructions are fed into the machine on slim reels of magnetized tape.

This "thinking machine" is smaller than any of its predecessors. It measures only three by eight by six feet while ENIAC has 40-foot panels eight feet high. This new compactness is made possible by more efficient design which requires only 1,500 vacuum tubes as against nearly 20,000 for ENIAC.

UNIVAC is scheduled for delivery within the next 18 months.

Science News Letter, August 21, 1948

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Do You Know?

Rice is a basic food for half the total world population.

The *ostrich*, which weighs from 150 to 300 pounds, is small in comparison with the extinct giant moa from New Zealand, which weighed about 500 pounds, and the elephant bird from Madagascar, also extinct, which weighed up to 1,000 pounds.

Plants are the only living things that can use directly the sun's energy and combine it with raw materials from the earth.

Although more than 100 kinds of *birds* have become extinct during the past two centuries, none have become extinct in Africa and only one or two in Asia, South America and Australia.

Tar sands, found in both the United States and Canada, are common sands stuck together by a black tarry material from which crude oil may be obtained by washing with hot water or by direct distillation.

Soaring *hawks* circle over the edges of forests or over cliffs where there are updrafts of air to help their gliding.

QUICK-READING TEMPERATURE-CONVERSION TABLES

For speed, when you're converting degrees F to C, and vice versa, you can now use a simple, compact "Sauveur-type" table all the way from absolute zero to 3350 C and 6062 F, in increments of one degree.

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Ocean Bottom Mapped

Loran in conjunction with the newest developments in echo sounding is aiding scientists chart ocean currents and map mountains and valleys of the ocean floor.

➤ MORE ACCURATE charting of location and velocity of ocean currents far out of sight of land, and increasingly detailed mapping of the mountains and valleys on the ocean bottom are among the accomplishments of seagoing physicists who have been recruited to the aid of oceanographers, states Prof. Columbus O'D. Iselin, director of the Woods Hole Oceanographic Institution, in PHYSICS TODAY (August)

Principal scientific tools employed in this work are Loran, war-born method that enables a ship to plot her position by picking up pulsed radio signals from accurately sited sending stations on shore, together with the newest developments in echo sounding.

Loran is particularly good in giving an accurate picture of changes of position of a vessel as she drifts or sails. By dodging into and out of a current, keeping constant track of position changes, it is possible to get data on its velocity on a hitherto impossible order of accuracy. Similarly, while the echo sounding apparatus is recording depths of submarine valleys and heights of mountains, Loran measures their lengths and breadths with reasonable accuracy.

Thus far, the use of Loran has shown that the Gulf Stream is considerably narrower and swifter than had been supposed. Larger meanders in the current have been found in the sector off New England and powerful eddies have been observed to form on either side. Data of this kind are exceedingly useful in everyday navigation.

Another discovery made by the seagoing physicists is the existence of a "false bottom" over much of the floor of the ocean. Small depth charges set to explode on reaching bottom send up a direct sound-wave signal, which is followed after a considerable interval by an echo. This indicates that over the solid rocky ocean floor there is a great depth of soft, unconsolidated sediment.

Dr. Iselin states that it was difficult at first to find physicists with stomachs reasonably resistant to seasickness. However, a group of young men have been recruited who have long since acquired their sea-legs and are able to man their instruments in all weathers.

Science News Letter, August 21, 1948

BOTANY

Puzzle Over Metasequoia

➤ CHINA'S "dawn redwood," Metasequoia, may turn out to be not only a "living fossil" but a "surviving ancestor" of the well-known American coast redwood, *Sequoia sempervirens*. This possibility has developed from an effort by Dr. G. L. Stebbins, Jr., of the University of California to settle the rather puzzling relationships of the recently discovered Chinese tree, hitherto known only as a fossil species (SCIENCE, July 30).

In characters visible to the naked eye, the dawn redwood resembles the coast redwood more than it does any one of a half-dozen other related conifer species, among which are the California big tree and the bald cypress of the South. However, it has points of difference with the coast redwood, and similarities to some of the other trees.

The study developed the interesting suggestion that the coast redwood, unlike all its kin-trees, may be a hybrid. This idea comes from an examination of the heredity-bearing chromosomes in the cell nuclei. The coast redwood appears to have a basic count of 66 chromosomes, as compared with 22 in most of the other related species. Multiple chromosome numbers always suggest hybrid origin to plant scientists.

Science News Letter, August 21, 1948

PHARMACOLOGY

$1,000 Prize Awarded For Iodine Research

➤ THE FIRST Iodine Educational Bureau award of $1,000 will go to Dr. W. T. Salter, professor of pharmacology at Yale University School of Medicine. His selection was announced at the convention of the American Pharmaceutical Association in San Francisco. He will receive the award at the next annual meeting.

The Yale pharmacologist was cited for his exploration of many fundamental questions concerning the function of iodine in nutrition and the life processes of the body. Dr. Salter's research was on the function of the thyroid gland and its relation to blood iodine fractions. He did significant work with radioactive iodine, particularly its effect on the thyroid gland in cases of toxic goiter.

Science News Letter, August 21, 1948

MEDICINE

Gift Restores Cancer Lab

Science Service story inspired $50,000 gift from the Ladies Auxiliary, V.F.W., for the new summer students' laboratory buildings of the Jackson laboratory.

► CANCER fighting all over the world will move forward at a faster pace, thanks to an event celebrated at Bar Harbor, Me., on Aug. 7.

The event was the dedication of the new summer students' laboratory buildings of the Roscoe B. Jackson Memorial Laboratory. The buildings, consisting of a laboratory where 40 students can work and learn, and dining, recreation and residence halls, have been built with a $50,000 gift from the Ladies Auxiliary, Veterans of Foreign Wars.

Inspiration for the gift was a Science Service story in a Florida newspaper, the ST. PETERSBURG TIMES. That story reported that medical authorities expected the search for a cancer cure to be slowed for years because forest fires last fall had destroyed the Jackson Laboratory at Bar Harbor and its invaluable collection of mice specially bred for cancer research.

When Mrs. Anna Mae Shaw of St. Petersburg, a past commander of the Ladies Auxiliary, Veterans of Foreign Wars, read that Science Service story, she immediately clipped it from her newspaper and sent it to Mrs. Evelyn B. Monaco of Gallup, N. Mex. Mrs. Monaco is chairman of the organization's cancer research fellowship fund. Mrs. Monaco immediately got in touch with Dr. C. C. Little, director of the Jackson Memorial Laboratory, and the planning that followed resulted in the buildings dedicated at Bar Harbor.

The significance of these buildings lies in the fact that they make it possible for the Jackson Memorial Laboratory to carry on with its new idea in cancer fighting. This is the training of talented young men and women to become assistants to cancer researchers.

The great dearth of such trained assistants, even before the fire last fall, brought requests from cancer-fighting institutions everywhere for the Jackson Laboratory to train workers for them. The more trained assistants the research workers have, the faster they can get on with their search for better ways to stop cancer. The long-sought cure for cancer might even come from one of the young students training there now.

The need for trained assistants is so great that Dr. Little and the trustees of Jackson Memorial Laboratory considered replacement of the summer students' Laboratory buildings an emergency that had to be met and gave it first place in their reconstruction plans. The new buildings dedicated are the first unit in the reconstruction of the fire-destroyed institution.

Present for the dedication besides Mrs. Monaco were Mrs. Dorothy Mann of St. Louis, national president of the Ladies Auxiliary, Veterans of Foreign Wars, Mrs. Helen M. Murphy of Union, N. J., senior vice president of the organization, and Mayor James F. Reynolds of Everett, Mass., representing the national commander of the Veterans of Foreign Wars. It was Mrs. Mann's idea, proposed at the last encampment of the Ladies Auxiliary, that the organization should aid cancer research.

Science News Letter, August 21, 1948

ASTRONOMY

Many Comets Whirl Around Terrifically Hot Star

► THOUSANDS OF BILLIONS of miles away from us is a star, tremendously hot, surrounded by a vast number of huge whirling comets. It is a so-called planetary nebula, Dr. Donald H. Menzel, Harvard astronomer, told the International Astronomical Union which met in Zurich.

This is a new picture of an astronomical object that has long puzzled astronomers. The filaments that comprise the luminous mass surrounding the central star are pictured as possessing a sharp condensed head and long streamers that extend to enormous distances.

Such nebular shells are probably much less massive than previously estimated, Dr. Menzel's calculations indicate.

Only about 100 to 150 such stars with concentric shells of luminosity are known to exist in space. These planetary nebulae are easily recognized by their gaseous spectra.

In the past, the nebula surrounding the star was believed to be as massive as the star that forms the central nucleus of the planetary nebula. The new estimate reduces its total mass by a factor of at least 100, and makes more reasonable the idea that planetary nebulae are stars that exploded thousands of years ago.

The central stars are known to be extremely hot, with temperatures ranging from about 30,000 to 150,000 degrees Centigrade. Most of their radiation is in the far ultraviolet.

Dr. Menzel reported to the meeting an as yet unpublished observation by Dr. Walter Baade of Mount Wilson Observatory, who found the nebular matter in the helical nebula in Aquarius to be distributed in knots and filaments. This particular planetary nebula is the largest of them all when seen through a telescope. Probably not more than one percent of its nebular volume is filled with matter.

Dr. Baade's observation, which fits in well with Dr. Menzel's theory, indicates that the present estimate of the abundance of hydrogen relative to oxygen is much too high. Hydrogen still proves to be very abundant, however, accounting for more than 99% of all atoms in the nebula.

Science News Letter, August 21, 1948

Science Service Radio

► LISTEN in to a discussion on advances in chemistry on "Adventures in Science" over the Columbia Broadcasting System at 3:15 p.m. EDST Saturday, Aug. 28. Watson Davis, director of Science Service, will have as his guest Dr. B. D. Van Evera, general chairman of the local committee of the American Chemical Society in Washington. Dr. Van Evera will give advance information on discoveries to be reported at a national meeting of the American Chemical Society the following week, and will tell of new research in progress in government laboratories.

Science News Letter, August 21, 1948

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MEDICINE

Chemicals Aid Cancer

➤ TWO CHEMICALS derived from the vitamin, folic acid, are proving effective in fighting cancer and leukemia, the American Pharmaceutical Association was told at its meeting in San Francisco.

Cancer patients have less pain and reduced need for narcotics when treated with pteroyltriglutamic acid, James H. Boothe of the American Cyanamid Company reported.

He said that some cases have been reported in which tumors were arrested by treatment with the chemical. But, he emphasized, further study will be needed to determine its effectiveness as more than a pain-killer.

Another member of the folic acid family has aided several children suffering with leukemia, Coy Waller, also of the American Cyanamid Company, told the meeting.

The chemical, aminopterin, was used to treat leukemia at Children's Hospital in Boston after it had been successfully tested against the disease in animals.

This chemical checks the overproduction of leukemic cells, but it is difficult to use clinically because of undesirable reactions from the toxic compounds.

Science News Letter, August 21, 1948

ARCHAEOLOGY

Iron Age Men's Fashions

➤ MEN'S FASHIONS in Denmark 1,900 years ago did not run to two-pants suits. They called for two coats—and no pants at all.

Such is the indication of two bundled-up garments found with the nude corpse of a man, well preserved in the acid water of a Danish peat bog some time ago. At first taken for blankets, they proved upon careful unwrapping and cleaning to be two skin jackets.

The better one of the two was made from 22 skins of some short-haired animal, so skillfully sewed with fine skin thread that any present-day furrier might be proud to claim it as his handiwork.

It is about 35 inches long in front but shorter in the back, with a 21-inch neckband. One side has two buttonholes, and the opposite edge is equipped with two leather straps sewed around a pair of small wooden plugs. One of these was found crosswise in its buttonhole.

The second garment is in much poorer condition. It is about the same size as the other, but of "pullover" pattern. The material is sheepskin.

By a series of pollen tests, Dr. Alfred Andersen, leading Danish geologist, fixed the date of the find as of the Iron Age, about the beginning of the Christian era.

An ancient carving in the castle built by the Romans at Mainz, Germany, furnishes corroboration of this two-coats, no-pants fashion of that date. It shows chained Teutonic war prisoners wearing nothing but these short jackets.

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ARCHAEOLOGY

Indian Bison Slaughter Site Is Discovered

➤ AN ENORMOUS PILE of bison bones discovered near Heart Butte, N. D., by an archaeological survey party from the Smithsonian Institution in Washington, may be the result of an old Indian method of slaughtering these animals. Archaeologists believe that the Indians, who lived in a rock shelter found near the bone deposit, killed the bison by simply driving a whole herd over a cliff, thus accomplishing in a short time the result of several days' hunting by other methods.

The bison bones and the Indian dwelling site were found by one of the survey parties which are combing the area in an effort to locate evidences of prehistoric Indian activities before they are flooded by dams and reservoirs now under construction. Areas in the states of Nebraska, North and South Dakota, Wyoming, Texas, Oklahoma, Colorado, Washington and Oregon are being covered by the search.

The archaeological rescue work this summer is a cooperative project of the Smithsonian Institution, the National Park Service, the Bureau of Reclamation and the Army Corps of Engineers. Some excavation work is already in progress.

At Medicine Creek, Nebr., an old Indian earth-lodge village has been found which dates back to the days before Columbus. Further excavations are now going on there to discover more about the lives of these early people.

Work in the entire Missouri Basin area is under the direction of Dr. Waldo R. Wedel, while Dr. Philip Drucker has general supervision over the surveys in the Columbia river region in Washington and Oregon. The program as a whole is under the direction of Dr. Frank H. H. Roberts, Jr., associate director of the Smithsonian's Bureau of American Ethnology.

Science News Letter, August 21, 1948

PHARMACOLOGY

Study on Eye Solutions Gains Pharmacist Award

➤ FOR DEVELOPING more satisfactory drug solutions for use in the eye, Harry W. Hind, practicing pharmacist of San Francisco, was awarded the 1948 Ebert Prize by the American Pharmaceutical Association.

Mr. Hind undertook research that aids the pharmacist in preparing drug solutions for use in the eyes. These preparations prove stable over a period of time and non-irritating to the delicate eye tissues. At the same time they have the exact drug action desired by the physician.

The most important drugs used in the eye were classified into five groups. Five "buffer systems" were then recommended for use by pharmacists in compounding prescriptions for these drugs.

Prof. Frank M. Goyan of the University of California College of Pharmacy received honorable mention for his part in the research.

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CHEMISTRY

Virus Molecules Line Up To Form a Crystal

See Front Cover

➤ ROW ON ROW, like soldiers on parade, the molecules line up in orderly fashion to form a crystal of tobacco necrosis virus protein. Each little dot is a virus unit, or molecule. Those that are out of order represent virus protein that is not completely crystallized. The photograph, shown on the cover of this week's SCIENCE NEWS LETTER, taken with the electron microscope using the metal shadowing technic, is among the first photographs ever taken showing molecules. It was taken by Dr. R. W. G. Wyckoff, of the U. S. National Institutes of Health, and shown at the International Congress of Crystallography at Harvard University. Each molecule is a sphere about four ten-thousandths of an inch in diameter. The crystal of the molecules should not be confused with the rod-shaped crystals of tobacco mosaic virus protein, another disease of plants.

Science News Letter, August 21, 1948

Books of the Week

TO SERVE YOU: To get books, send us a check or money order to cover retail price. Address Book Dept., SCIENCE NEWS LETTER, 1719 N St., N. W., Washington 6, D. C. In the case of free publications order direct from issuing organizations.

ALKYLATION OF ALKANES, VOLUME I: PATENTS ON ALKYLATION OF ALKANES—Gustav Egloff and George Hulla—*Reinhold*, 1138 p., $20.00. The principles involved have broad implications that can be applied to amines, alcohols, aromatic hydrocarbons, and many other organic compounds.

CATHODE RAY TUBE DISPLAYS—Theodore Soller, Merle A. Starr, and George E. Valley, Jr.—*McGraw-Hill*, 746 p., illus., $10.00. In three and a half years after January, 1942, nearly 3,000,000 tubes were made. This book is intended to aid in their peacetime use.

CHECKLIST OF PLANTS OF GRAND CANYON NATIONAL PARK—W. B. McDougall—*Grand Canyon Natural History Assn.*, 3d ed., 126 p., illus., paper, 50 cents. Including 40 species not known to occur in Arizona outside the park and seven not known from any other part of the world.

CHICAGO NATURAL HISTORY MUSEUM, REPORT OF THE DIRECTOR TO THE BOARD OF TRUSTEES FOR THE YEAR 1947—*Chicago Natural History Museum*, 144 p., illus., paper, $1.00. Includes reports of research and a list of members.

ESKIMO DOCTOR—Aage Gilberg—*Norton*, 229 p., illus., $3.00. The story, in diary form, of a Danish physician whose practice was among the Eskimos of Thule, Greenland. Illustrated by the author's own photographs and translated by Karin Elliott.

ESSENTIALS OF PHYSICS—Carl F. Eyring—*Prentice-Hall*, 422 p., illus., $5.00. An elementary college text especially for non-science students. Formerly entitled, "Survey Course in Physics."

FOURTH SEMIANNUAL REPORT—United States Atomic Energy Commission—*Govt. Printing Office*, 192 p., paper, 35 cents. Including the production, distribution, and utilization of isotopes, atomic power, and sources of the raw material, uranium. (*See SNL*, Aug. 7 and 14.)

HANDBOOK OF SOUTH AMERICAN INDIANS, VOLUME 4, THE CIRCUM-CARIBBEAN TRIBES—Julian H. Steward, Ed.—*Govt. Printing Office*, 609 p., illus., $3.50. About tribes that are the least known of all those covered in the handbook: the great majority have long been extinct culturally, if not racially.

THE INDUSTRIAL ENVIRONMENT AND ITS CONTROL—J. M. Dallavalle—*Pitman*, 225 p., $4.50. For those concerned with conditions affecting the health and welfare of workers.

THE LEAFHOPPERS, OR CICADELLIDAE, OF ILLINOIS (EURYMELINAE-BALCLUTHINAE)—D. M. Delong—*State of Illinois Department of Registration and Education*, 376 p., illus., $1.50.

MARINES AT MIDWAY—Lt. Col. Robert D. Heinl, Jr.—*Govt. Printing Office*, 56 p., illus., paper, 50 cents. An official account of an epic in Marine Corps history.

MATHEMATICS, OUR GREAT HERITAGE: Essays on the Nature and Cultural Significance of Mathematics—William L. Schaaf, Ed.—*Harper*, 291 p., $3.50. Not a mathematical work, but a book about mathematics intended to remedy the situation that although "mathematical physics embodies the highest intellectual achievements of man, most of it, unfortunately, is inaccessible to the cultured layman."

OUR SURROUNDINGS: A Complete General Science—George W. Fowler, Morton C. Collister and Ernest L. Thurston—*Iroquois Publishing Company*, rev. ed., 757 p., illus., $2.96. Includes atomic energy, television, DDT. A high school text.

PRINCIPLES AND PRACTICE OF THE RORSCHACH PERSONALITY TEST—W. Mons—*Lippincott*, 164 p., $4.00. The author, who is British, brings together into one convenient handbook information from many sources on the use and interpretation of this important personality test.

THE PRONGHORN ANTELOPE AND ITS MANAGEMENT—Arthur S. Einarsen—*Wildlife Management Institute*, 238 p., illus., $4.00. Information about a beautiful animal that can travel 50 to 60 miles an hour; an animal that has recently been salvaged from extinction.

SCIENCE, SERVANT OF MAN: A Layman's Primer for the Age of Science—I. Bernard Cohen—*Little, Brown*, 362 p., illus., $4.00. Written at the request of the National Science Fund of the National Academy of Sciences to answer the questions: "What is the good of it? How are discoveries made? What spirit moves the scientist?" Interesting facts and background in a wide variety of fields.

STRENGTH OF HOUSES: Application of Engineering Principles to Structural Design—Herbert L. Whittemore and others—*Govt. Printing Office*, 135 p., illus., $1.50. Data which will enable the engineer to avoid the use of superfluous material as well as to make houses more beautiful by making windows larger and bringing more of the outdoors inside. (*See SNL*, June 26.)

STUDIES OF UPPER-AIR CONDITIONS IN LOW LATITUDES—Herbert Riehl—*University of Chicago Press*, 103 p., illus., paper, $2.00. In two parts, one on the formation of West Atlantic hurricanes and the other on relations between high- and low-latitude circulations.

SURVEY OF FOOD AND NUTRITION RESEARCH IN THE UNITED STATES, 1947—*National Research Council*, 306 p., paper, $1.00. A compilation of active research projects classified by subject, list of organizations conducting research, personnel list, and index.

A TEXTBOOK OF HEAT: For Upperclassmen—LeRoy D. Weld—*Macmillan*, 436 p., illus., $5.00. For students already familiar with differential and integral calculus.

Science News Letter, August 21, 1948

ARCHAEOLOGY

Ruins of Danish Castle Produce Immense Key

➤ EXCAVATION of a knight's castle near Gylling, Denmark, which was besieged and gutted with fire more than 600 years ago brought to light an immense key to the main gate, a hammer of unique design, and a pair of well-preserved iron handcuffs.

A number of broken bronze dishes and pans have been revealed, as well as many silver coins. The place is literally covered with heavy crossbow bolts.

The excavation is expected to furnish much new information about life behind the fortified walls of a knight's castle in the late Middle Ages.

The site is known as Kjaersgaard Volsted. It was originally surrounded on three sides by a lake, while a moat protected it against attack from land.

The owner of Kjaersgaard was a fourteenth century German knight who gained control of the castle through marriage. He refused to help the Danes with their war of liberation and gave refuge to defeated Germans.

The great numbers of missiles now being recovered give an idea of the length of time he withstood attack before his fortification came down in flames. Perhaps the war or maybe the Black Death prevented the ruins from being stripped of much precious metal before it became a forgotten, overgrown heap in the lake.

Science News Letter, August 21, 1948

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• New Machines and Gadgets •

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⚙ *AUTOMOBILE DOOR LOCK, which can not be opened by children while the car is moving or the engine running, makes use of a vacuum tube from the engine which pulls spring-retracted strikers into locked position on the doors when the engine is started. Pressure on a button on the instrument board breaks the vacuum when desired.*

Science News Letter, August 21, 1948

⚙ *BIT-WEIGHT CONTROL is an electrical above-ground device which automatically controls the downward pressure on an oil-drilling bit, working up to 18,000 feet down in the earth, caused by the weight of the bit's shaft. It adjusts the position of the hoisting mechanism to maintain a constant restraining force on the drill stem.*

Science News Letter, August 21, 1948

⚙ *ALUMINIZED STEEL of a new type is particularly for anodes and other fabricated parts for vacuum tube use. The material eliminates the need for carbonized nickel-plated steel parts, and, it is claimed, provides better welding properties, lower cost and eliminates possible transfer of carbon to cathode during manufacture.*

Science News Letter, August 21, 1948

⚙ *EYE-TESTING and training instrument, shown in the picture, is a complete and versatile device for use by professionals in determining visual deficiencies and the proper prescriptions for corrective glasses. It also discovers inability of the two eyes to function as a unit and assists correction by eye muscle training.*

Science News Letter, August 21, 1948

⚙ *DRYING TIME recorder, for testing paints, varnishes, enamels, adhesives and other coatings, is placed over a wet film applied to a glass panel and has a spherical pin that travels in a circle in contact with the film. Rotating at the rate of one revolution per day, recording mechanism shows when the pin no longer leaves an impression on the film.*

Science News Letter, August 21, 1948

⚙ *DRIER FOR photographic prints, photostats and blueprints, with electrically driven variable-speed drum and a balanced heater unit within the drum, is an improved type suitable for small shop or home use. Operating on 120-volt current, either alternating or direct, it is plugged into an electric outlet without special wiring.*

Science News Letter, August 21, 1948

⚙ *RIBBONWRITER, an attachment for standard typewriters by means of which from one to five copies may be made without the use of carbon paper, produces letters all of which look like originals. The ribbons of the easy-to-attach and easy-to-use device outlast ordinary ribbons two to one because cushioned from sharp keys by paper.*

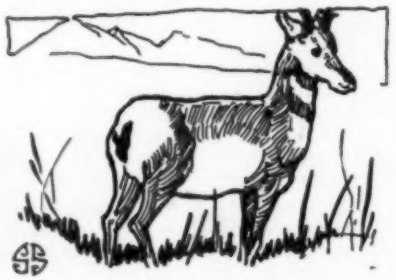
Science News Letter, August 21, 1948

• Nature Ramblings *by Frank Thone* •

► CERTAINLY speediest of all hoofed animals, and perhaps fastest thing that runs on four feet, is the claim advanced on behalf of the pronghorn antelope by Arthur S. Einarsen, leader of the Oregon Cooperative Wildlife Research Unit, in a new book, THE PRONGHORN ANTELOPE AND ITS MANAGEMENT (Wildlife Management Institute, $4).

On their native range, pronghorn frequently get into races with automobiles, running parallel with them, or crossing in front of them on the road. This affords good opportunity for measurement of their speed, in cars with accurate speedometers. A collection of all available records made by Mr. Einarsen, together with his own observations, shows 50 miles an hour as a rather common racing speed for the animals. Once a pronghorn, in the course of such a volunteer race, passed in front of his car which was running at 61 miles an hour. There is also one statement of a 70-mile clip attained by a pronghorn doe. Mr. Einarsen thinks that the only mammal that

Fleetest Hooves



can move faster than that, even for short distances, may be the cheetah, or hunting leopard of the Orient.

Confidence in its ability to run away from any enemy on the ground permits the pronghorn to indulge its highly developed trait of curiosity. Mr. Einarsen tells of pronghorn "kibitzer galleries" that have watched roadbuilding machinery in operation, in quite human fashion. Even newborn pronghorn kids are intensely inquisitive when approached by humans.

Increase in pronghorn numbers, under hunting restrictions and modern wildlife management methods, need occasion no great concern over their competition with livestock for food plants on the range. Close study of their food habits shows that their first preference is for browsing on sagebrush and other shrubs, then for rangeland weeds, with grass coming in only as third choice. Harm to field crops seems to result more from trampling by herds taking short cuts than by actual feeding.

Despite their great jumping ability, pronghorn do not often sail over even low fences. They much prefer getting under them, and if the bottom wire is as much as a foot above ground the animals can slip through with hardly any check in their speed.

Science News Letter, August 21, 1948